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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,625	11/21/2003	Kei Matsuoka	245719US2RD	8609
22850	7590	05/18/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.			RHEE, JANE J	
1940 DUKE STREET			ART UNIT	
ALEXANDRIA, VA 22314			PAPER NUMBER	

1745

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/717,625		MATSUOKA ET AL.	
	Examiner		Art Unit	
	Jane Rhee		1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/19/05</u> <u>10/7/05</u> <u>11/21/03</u> | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-7,16-17,19-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Baldauf et al. (20020119352).

As to claim 1, Baldauf et al. discloses a fuel cell system comprising a fuel cell having an anode, a cathode, and an electrolyte membrane put therebetween (figure 1 number 1), a fuel supply unit supplying fuel to the anode an air supply unit supplying air to the cathode (figure 1 number 8), and a heat exchanger exchanging heat between the fuel supplied by the fuel supply unit to the anode and an exhaust exhausted from the fuel cell (figure 1 number 4). As to claim 2, Baldauf et al. discloses that the exhaust is exhausted from the cathode (figure 1 number 12). As to claim 3, Baldauf et al. discloses that the exhaust is exhausted from the anode (figure 1 number 14). As to claim 4, Baldauf et al. discloses that the exhaust is exhausted from both the cathode and the anode (page 5 paragraph 0072). As to claim 5, Baldauf et al. discloses that the fuel supply unit further comprises a mixing container mixing the fuel and the exhaust so

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as to form a mixture in advance (figure 1 number 5). As to claim 6-7, Baldauf et al. discloses that fuel cell is a direct methanol fuel cell (page 1 paragraph 0002).

As to claims 16, Baldauf et al. discloses a fuel cell system comprising a fuel cell having an anode, a cathode and an electrolyte membrane put therebetween (figure 1 number 1), a fuel supply unit including a mixing container mixing fuel and an exhaust exhausted from the fuel cell so as to form a mixture (figure 1 number 5), the mixture being supplied to the anode (figure 1 number 21), an air supply unit supplying air to the cathode (figure 1 number 31), a heat exchanger exposed to an ambient air and a circulation unit circulating the mixture between the mixing container and the heat exchanger so as to exchange heat between the ambient air and the mixture (figure 1 number 4). As to claim 17, Baldauf et al. discloses that the mixing container is configured so that the exhaust passes through the mixture housed in the mixing container thereby gas fractions in the exhaust is separated (figure 1 number 5). As to claim 18, Baldauf et al. discloses a second heat exchanger exchanging heat between the mixture supplied by the fuel supply unit and an exhaust exhausted from the anode (figure 1 number 4). As to claim 19, Baldauf et al. discloses a second heat exchanger exchanging heat between the mixture supplied by the fuel supply unit and an exhaust exhausted from the cathode (figure 1 number 2). As to claim 20, Baldauf et al. discloses a second heat exchanger exchanging heat between the mixture supplied by the fuel supply unit and an exhaust exhausted from the cathode and anode (figure 2 number 12a, 12b). As to claims 21-23, Baldauf et al. discloses that fuel cell is a direct methanol fuel cell (col. 1 paragraph 0002).

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2. Claims 8-15 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawasumi et al (6641944).

As to claim 8, Kawasumi et al. discloses a fuel cell system comprising a fuel cell having an anode, a cathode, and an electrolyte membrane put therebetween (figure 1 number 16), a fuel supply unit including a mixing container mixing fuel and an exhaust exhausted from the fuel cell so as to form a mixture (figure 1 number 12), the mixture being supplied to the anode (figure 1 number 43), an air supply unit supplying air to the cathode (figure 1 number 34), and a heat exchanger connected to the mixing container so as to exchange heat between ambient air and the mixture (figure 1 number 17). As to claim 9, Kawasumi et al. discloses that the mixing container is configured so that the exhaust passes through the mixture housed in the mixing container thereby gas fractions in the exhaust is separated (figure 1 number 12). As to claim 11, Kawasumi et al. discloses a second heat exchanger exchanging heat between the mixture supplied by the fuel supply unit and an exhaust exhausted from the anode (figure 1 number 15). As to claims 12- 13, Kawasumi et al. discloses a second heat exchanger exchanging heat between the mixture supplied by the fuel supply unit and an exhaust exhausted from the cathode and anode (figure 1 number 15). As to claims 14-15, Kawasumi et al. discloses that fuel cell is a direct methanol fuel cell (col. 2 line 12).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baldauf et al. in view of Kawasumi et al. (6641944).

Baldauf et al. discloses the fuel cell system described above. Baldauf et al. fail to disclose a second mixing container communicated with the mixing container wherein the mixture is supplied from the second mixing container to the anode. Kawasumi et al. teaches a second mixing container (figure 1 number 14) communicated with the mixing container (figure 1 number 12) wherein the mixture is supplied from the second mixing container to the anode (figure 1 number 16) for the purpose of mixing reformat gas generated in the reformer with air before supplying to the fuel cell in order to make the drive system work efficiently (col. 1 lines 30-32,col. 2 lines 16-20).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide Baldauf et al. with a second mixing container communicated with the mixing container wherein the mixture is supplied from the second mixing container to the anode in order to mix reformat gas generated in the reformer with air before supplying to the fuel cell in order to make the drive system work efficiently (col. 1 lines 30-32,col. 2 lines 16-20) as taught by Kawasumi et al.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jane Rhee whose telephone number is 571-272-1499. The examiner can normally be reached on M-F 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jane Rhee
May 10, 2006



PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER